

Press Release: System Dynamics Society Awards 2009 Applications Award to Ken Cooper ('71) and Greg Lee for Work at Fluor Corporation



From left: Gregory Lee, Kim Warren (head of the System Dynamics Application Award Committee) and Kenneth Cooper

At its annual meeting in Albuquerque, the International System Dynamics Society awarded its 2009 Applications Award to Kenneth Cooper of Cooper Associates, Milford NH, and Gregory Lee of Fluor Corporation, Aliso Viejo CA. The Applications Award is presented for the best application of system dynamics, and is one of the preeminent awards in the field of dynamic simulation modeling. The international panel of judges unanimously selected Cooper and Lee's "Managing the Dynamics of Projects and Changes at Fluor" as the best modeling application from nominees around the world. Cooper and Lee designed, built, tested, and implemented a model-based system to aid project management at Fluor Corporation. Fluor is one of the world's largest Engineering and Construction firms, with 2008 revenues over \$20 Billion. The US-based firm operates in every major business sector and geography.

The system developed by Cooper and Lee rapidly tailors a model to simulate each engineering and construction project. Each model is then used to foresee future cost and schedule impacts of project changes, and most important, test ways to avoid negative impacts. This "Change Impact Assessment" system has now been used on over 100 different projects. Hundreds of project managers and planners have been trained in the ongoing internal use of the system. In addition to providing a better understanding of the project-wide effects of changes, the cost savings identified for Fluor and its clients amounts to hundreds of millions of dollars.

System dynamics, developed at the Massachusetts Institute of Technology, is a computer simulation methodology for studying and managing complex systems. The methodology is used internationally by leading corporations and universities. The method is critical to forecasting and mitigating project change impacts. Growth of a project's work scope, without schedule relief, often entails, for example, adding resources and working overtime. But these management responses can cause unintended consequences, such as productivity loss from overtime-induced fatigue. The productivity loss can necessitate adding even more resources, further reduction in productivity, and so on in a downward spiral. The ability of system dynamics to quantify these effects allows managers to foresee the impacts and design strategies to mitigate or even avoid the impacts. Distinctly different from the experience of so many projects elsewhere, this application has resulted in large project cost savings.